Paper No. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte TIM BROWN and DAVID FOSTER

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Appeal No. 2000-1120
Application No. 09/095,205

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ON BRIEF

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Before KIMLIN, KRATZ and PAWLIKOWSKI, Administrative Patent Judges.

PAWLIKOWSKI, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the final rejection of claims 14-23, which are all the claims pending in the application. Claims 1-13 have been canceled.

The subject matter on appeal is represented by the following claims:

14. A bone cement mixing apparatus comprising:

a syringe body, said syringe body defining a generally cylindrical mixing chamber, said mixing chamber having a central axis and first and second oppositely disposed ends;

a plunger mounted within said mixing chamber so as to be initially disposed adjacent said first end thereof, said plunger being slidably movable along said central axis toward said second end of said mixing chamber;

a mixing member rotatably mounted in said mixing chamber, said mixing member including:

a rotatable shaft, said rotatable shaft extending along said central axis; and

at least a first blade mounted on and radially extending from said rotatable shaft, rotation of said shaft causing said blade to rotate about said central axis within the interior of said mixing chamber, and

drive means for causing rotation of said mixing member, said drive means including:

a handle located to the exterior of said syringe body at said second end of said mixing chamber, said handle being axially movable relative to said mixing chamber, the movement of said handle being parallel to and in-line with said central axis; and

a gear mechanism for connecting said handle to said mixing member, said gear mechanism comprising a barley twist mechanism having a threaded rod, a first end of said rod being connected to said handle, said gear mechanism further having a rotatable drive bush, said drive bush being coupled to said mixing member rotatable shaft for rotation therewith, said drive bush being engaged by said threaded rod whereby axial movement of said handle will cause rotation of said drive thereby imparting rotational force to said mixing member.

16. The apparatus of claim 15 further comprising:

means for establishing air tight seals between said lid assembly and said mixing member and between said lid assembly and said syringe body.

20. The apparatus of claim 19 further comprising:

means for establishing air tight seals between said lid assembly and said mixing member and between said lid assembly and said syringe body.

23. A method of mixing bone cement comprising the steps of: placing the constituents of the bone cement in the cylindrical mixing chamber of a syringe body;

mounting a rotatable mixing device on the syringe body, the step of mounting including immersing a mixing blade of the mixing device in the constituents placed within the mixing chamber;

imparting linear motion to a drive handle located to the exterior of the syringe body, said linear motion being parallel to and in line with the axis of the cylindrical chamber; and

translating said linear motion of the drive handle to rotational motion of the mixing element to cause the mixing of the bone cement constituents in the syringe.

The references relied upon by the examiner are:

Gunnarsson	4,758,096	July 19, 1988
Chan	4,973,168	Nov. 27, 1990
Lidgren (EPA)	0 178 658	Apr. 23, 1986
Blasnik (GB)	1 430 064	Mar. 31, 1976

Claims 14-21 and 23 stand rejected under 35 U.S.C. § 103 as being unpatentable over Chan in view of Blasnik.

Claims 14-15, 17-19 and 21-23 stand rejected under 35 U.S.C. § 103 as being unpatentable over Gunnarsson in view of Blasnik.

Claims 14-23 stand rejected under 35 U.S.C. § 103 as being unpatentable over Lidgren in view of Blasnik.

On page 9 of the brief, appellants group the claims as follows:

1. Claims 14, 15, 17, 18, 19, 21 and 22;

2. Claims 16 and 20; and

3. Claim 23

On page 3 of the answer, the examiner agrees with appellants' groupings. Hence, we consider claims 14, 16, 20, and 23 on this appeal.

We refer to the brief and to the answer for a complete exposition of the opposing view points expressed by appellants and by the examiner concerning the above-noted rejections.

OPINION

For the reasons set forth in the answer and below, we will sustain each of the rejections.

The examiner's position essentially is that it would have been obvious to one of ordinary skill in the art to have substituted the mixing mechanisms found in each of Chan, or Gunnarsson, or Lidgren with the barley twist mechanism disclosed in Blasnik. The examiner's reasoning is that it would have been obvious to make this substitution **(1)** for the purposes of enabling a variation in the rotational speed of the mixing member in response to the feel of the operator by controlling the rate of depression of the handle and drive shaft and to lessen fatigue of the operator and prevent slippage of the mixing device during operation thereof, and **(2)** to facilitate sensing of the consistency and viscosity of the cement while mixing is being performed (answer, pages 5-14, particularly pages 7-8, pages 10-11 and pages 13-14).

Appellants argue, *inter alia*, that the examiner has not given proper weight to the preamble of the claims. (brief, pages 13-14). Appellants argue that the preamble recites "a **bone**

cement mixing apparatus" or "a method of mixing **bone cement**", and that this recital serves to define the structure of the claimed invention (brief, page 13).

We find that the phrase "a bone cement mixing apparatus" recited in claim 14 and the phrase "a method of mixing bone cement comprising" recited in claim 23 is satisfied by Chan or Gunnarsson or Lidgren. That is, each of these references is directed to mixing bone cement.

Appellants also argue that Blasnik is nonanalogous art with respect to Chan, Gunnarsson, and Lidgren. (brief, pages 14-15). Appellants further argue that the examiner's reasoning for combining the references does not reach the legally established threshold level of a convincing line of reasoning. (brief, pages 16-19). Appellants also argue that there is no suggestion within the references for the combination, and that the cited references teach away from combining with each other. (brief, pages 20-22). Appellants argue that there is no reasonable expectation of success for the examiner's combination of references and that the combination would render the reference being modified unsatisfactory for its intended purpose. (brief, pages 22-25). Appellants finally argue that the examiner's combination changes the principles of operation of the references being modified. (brief, pages 25-26).

In response to the aforementioned arguments presented by appellants, we incorporate herein the examiner's comments beginning on page 17 of the answer through page 20. We add the following additional comments for emphasis.

We recognize that each of the primary references of Chan, Chan, or Gunnarsson, or Lidgren each set forth a bone cement mixing apparatus comprising the claimed components of appellants'

claims, with the exception that each of these primary references does not utilize a barley twist mechanism for imparting rotational movement to the mixing member while providing linear motion.

However, as pointed out by the examiner on page 17 of the answer, Chan and Gunnarsson teach to combine rotational movement of the mixing member with up and down motion (reciprocal motion). Blasnik teaches to combine these movements by utilizing a barley twist mechanism.

We note that the prior art can be modified or combined to reject claims as prima facie obvious as long as there is a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 1097, 231 USPQ 375, 379 (Fed. Cir. 1986). Here, we determine that one skilled in the art would have been motivated to utilize a barley twist mechanism disclosed in Blasnik with a reasonable expectation of success of providing rotational movement of the mixing member found in each of the primary references while providing linear motion. Appellants' arguments (as summarized above) do not convince us that such a substitution carries such a degree of uncertainty of success that the skilled artisan would have been dissuaded from making the substitution. We emphasize that if one skilled in the art wanted to provide reciprocal and rotational movement (as taught, e.g., in Chan and Gunnarsson), one skilled in the art would have found it obvious to have selected a barley twist mechanism to do so, because Blasnik teaches that a barley twist mechanism provides for such movement.[1]

[1] With respect to claims 16 and 20, we agree with the examiner's statements made on pages 18-19 of the answer, that (1) Chan and Gunnarsson teach use of air tight seals, and (2) appellants' arguments are unconvincing regarding whether one skilled in the art would achieve an air tight seal with a barley twist mechanism.

Additionally, appellants' arguments do not convince us that the substitution as proposed by the examiner alters the principles of operation of each of the primary references, or that the combination would render each of the primary references being modified unsatisfactory for its intended purpose, for the reasons discussed above.

In view of the above, we determine that the examiner has set forth a prima facie case of obviousness and we hereby affirm each of the rejections of record.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR 1.136(a).

AFFIRMED

Edward C. Kimlin Administrative Patent Judge	)
Peter F. Kratz Administrative Patent Judge	) BOARD OF PATENT) APPEALS AND) INTERFERENCES
Beverly A. Pawlikowski Administrative Patent Judge	)

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